

8. ***Claims Appendix.***

A copy of the claims involved in the appeal follows:

1. (Previously Presented) A tailless aircraft, including:
a wing having a trailing edge and independently deflectable flight control surfaces located along the trailing edge, the wing being capable during flight of generating a normal lifting force having a spanwise force distribution across the wing; and
a control surface reconfiguration system wherein, for each of a plurality of different flight conditions, the flight control surfaces are selectively reconfigurable to respective predetermined positions, which in combination, optimize the spanwise force distribution across the wing for each of the plurality of different flight conditions including a low speed flight condition wherein first selected ones of the deflectable flight control surfaces located at stall-critical spanwise locations are positioned to increase a local coefficient of lift and other deflectable flight control surfaces are positioned to control pitch trim.
2. (Original) The aircraft as set forth in Claim 1, wherein:
the lifting force generates a moment acting on the wing; and
the control surface reconfiguration system also minimizes the moment for at least one of the different flight conditions.
3. (Original) The aircraft as set forth in Claim 2, wherein:
the control surface reconfiguration system minimizes the moment for structurally crucial flight conditions.
4. (Original) The aircraft as set forth in Claim 1, wherein the control surface reconfiguration system also trims the wing.
5. (Original) The aircraft as set forth in Claim 1, wherein:
one of the different flight conditions comprises cruise, with the wing having a lift-to-drag ratio during cruise; and

the control surface reconfiguration system functions to maximize the lift-to-drag ratio of the wing during the cruise flight condition.

6. (Previously Presented) The aircraft as set forth in Claim 1, wherein the plurality of flight conditions include a pitch maneuver wherein the deflectable flight control surfaces are positioned to minimize the bending moment with respect to a bend axis of the wing.

7. (Original) The aircraft as set forth in Claim 1, wherein:
one of the different flight conditions comprises a pitch maneuver; and
the control surface reconfiguration system functions to achieve the required lifting force during the pitch maneuver flight condition.

8. (Original) The aircraft as set forth in Claim 7, wherein:
the aircraft has a longitudinal axis of symmetry; and
the control surface reconfiguration system functions to shift the spanwise force distribution towards the longitudinal axis without reducing the lifting force, during the pitch maneuver flight condition.

9. (Original) The aircraft as set forth in Claim 1, wherein the aircraft is a blended wing-body aircraft.

10. (Original) The aircraft as set forth in Claim 1, wherein the different flight conditions include cruise, takeoff, and pitch maneuvers.

11. (Previously Presented) An aircraft, including:
a wing having a trailing edge and independently deflectable control surfaces located along the trailing edge, the wing being capable during flight of generating a normal lifting force having a spanwise force distribution across the wing; and

reconfiguration means for selectively reconfiguring the control surfaces to respective predetermined positions, which in combination, are effective to optimize the spanwise force distribution across the wing for each of a plurality of different flight conditions including a low speed flight condition wherein selected ones of the deflectable flight control surfaces located at stall-critical spanwise locations are positioned to increase a local coefficient of lift and other deflectable flight control surfaces are positioned to control pitch trim.

12. (Original) The aircraft as set forth in Claim 11, wherein:
the lifting force generates a moment acting on the wing; and
the reconfiguration means functions to minimize the moment for at least one of the different flight conditions.

13. (Original) The aircraft as set forth in Claim 11, wherein:
the control surface reconfiguration system minimizes the moment for structurally crucial flight conditions.

14. (Original) The aircraft as set forth in Claim 11, wherein the reconfiguration means also trims the wing.

15. (Original) The aircraft as set forth in Claim 11, wherein:
one of the different flight conditions comprises cruise, with the wing having a lift-to-drag ratio during cruise; and
the reconfiguration means functions to maximize the lift-to-drag ratio of the wing during the cruise flight condition.

16. (Previously Presented) The aircraft as set forth in Claim 11, wherein the plurality of flight conditions include a pitch maneuver wherein the deflectable flight control surfaces are positioned to minimize the bending moment with respect to a bend axis of the wing.

17. (Original) The aircraft as set forth in Claim 11, wherein:

one of the different flight conditions comprises a pitch maneuver; and
the reconfiguration means functions to achieve the required lifting force during the pitch maneuver flight condition.

18. (Original) The aircraft as set forth in Claim 17, wherein:
the aircraft is a blended wing-body with a longitudinal axis of symmetry; and
during the pitch maneuver, the reconfiguration means functions to shift the spanwise force distribution towards the longitudinal axis without reducing the lifting force.

19. (Previously Presented) A method for controlling flight of a blended wing-body, tailless aircraft which includes a wing having a trailing edge and independently deflectable flight control surfaces located along the trailing edge which are deflectable in upward and downward directions, the wing being capable during flight of generating a normal lifting force having a spanwise distribution across the wing, the method including the steps of:

predetermining for each of a plurality of different flight conditions the respective position for each of the flight control surfaces, which in combination, optimize the spanwise force distribution across the wing for each of said different flight conditions including a low speed flight condition wherein first selected ones of the deflectable flight control surfaces located at stall-critical spanwise locations are positioned to increase a local coefficient of lift and other deflectable flight control surfaces are positioned to control pitch trim;

subjecting said aircraft to at least one of said different flight control conditions; and
reconfiguring the control surfaces upwardly or downwardly to the respective predetermined positions when subjecting said aircraft to each of said at least one flight control conditions to optimize the spanwise force distribution across the wing.

20. (Original) The method as set forth in Claim 19, including the step of
reconfiguring the control surfaces to control trim of the aircraft.

9. ***Evidence Appendix.***

None.

10. ***Related Proceedings Appendix.***

None.